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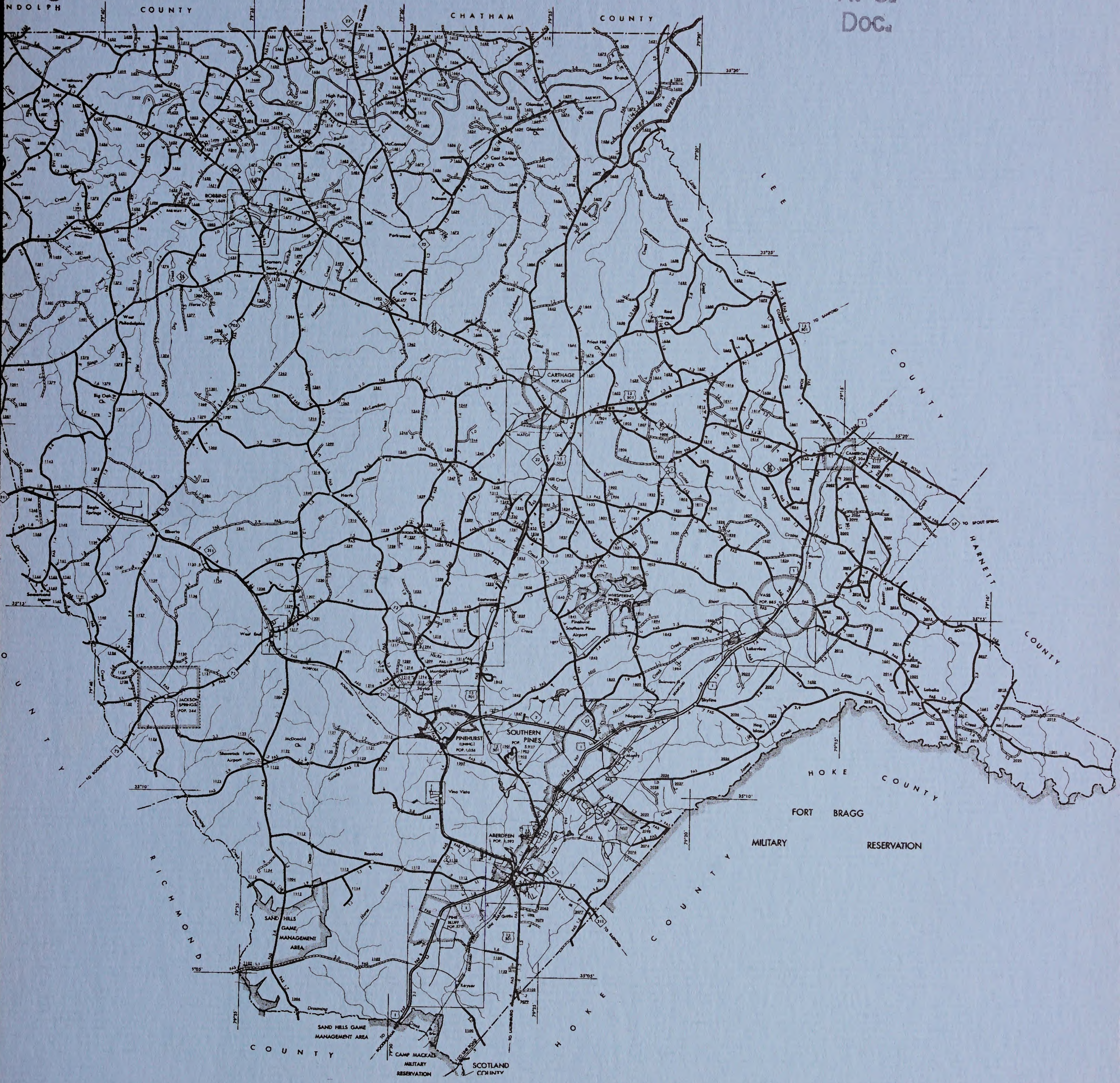

THOROUGHFARE PLAN

MOORE COUNTY, NORTH CAROLINA

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INTRODUCTION

The economic and social well-being of a region is largely dependent upon an adequate overall transportation system. Unless people and goods are able to move from one place to another quickly and conveniently, the area becomes dormant and unable to develop to its full economic potential. Realizing the key role that highways play in this transportation system it has become increasingly necessary to develop a good continuous network of national, state, and regional highways which can effectively handle present and anticipated traffic needs.

The growth of Moore County, in recent years, has placed an increasing demand on its existing highway network. There has been a growing number of part-time farmers who live in remote sections of the county but work inside the city, hence becoming dependent upon automobile travel. The farmers themselves are demanding better farm-to-market roads and a more efficient overall rural road system. The need has therefore become apparent for a long range plan which will integrate the many different classes of roads within the county into an efficient, safe, and convenient highway system. The purpose of this thoroughfare plan is to fill that need.

The following thoroughfare plan is designed to provide a network of principal arterial roads, minor arterial roads, major and minor collector roads, and local roads which will become the backbone for the county road system.

The proposed system of thoroughfares was developed following the basic principles of thoroughfare planning as described in Section II of this report. Thoroughfares were located based upon field investigations, existing and

anticipated land use and population distribution, and topographic conditions. The plan advocates those improvements which are felt to be essential for proper traffic circulation within the current planning period (1973-1993).

Proposed improvements within the county plan will be primarily the responsibility of the Highway Commission. However, Moore County through the use of subdivision and zoning controls can do much toward the implementation of the plan. Thus, it is desirable that the plan be formally approved by both the County and the Highway Commission to serve as a mutual official guide in the development of the thoroughfare system.

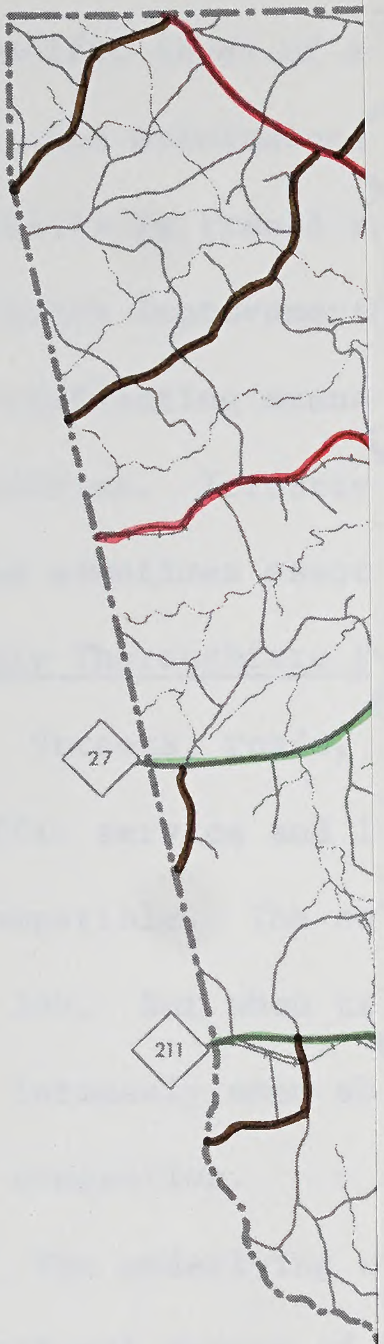
It should be emphasized that the route studies conducted as part of this thoroughfare planning study were not detailed enough to determine what the ultimate imporvement would be, i.e., widening or relocation. The locations shown on the thoroughfare plan should therefore be considered as corridor locations with more detailed studies to actually precede the construction of specific projects.

COUNTY THOROUGHFARE PLANNING PRINCIPLES

Purpose of Planning

There are many benefits to be gained from thoroughfare planning, but the primary objective is to assure that the road system will be progressively developed in such a manner as to adequately serve future travel desires. Thus, the cardinal concept of thoroughfare planning is that provisions be made for street and highway improvements so that as needs arise feasible opportunities to make improvements exists.

The major benefits derived from thoroughfare planning are: (1) each road or highway can be designed to perform a specific function and to provide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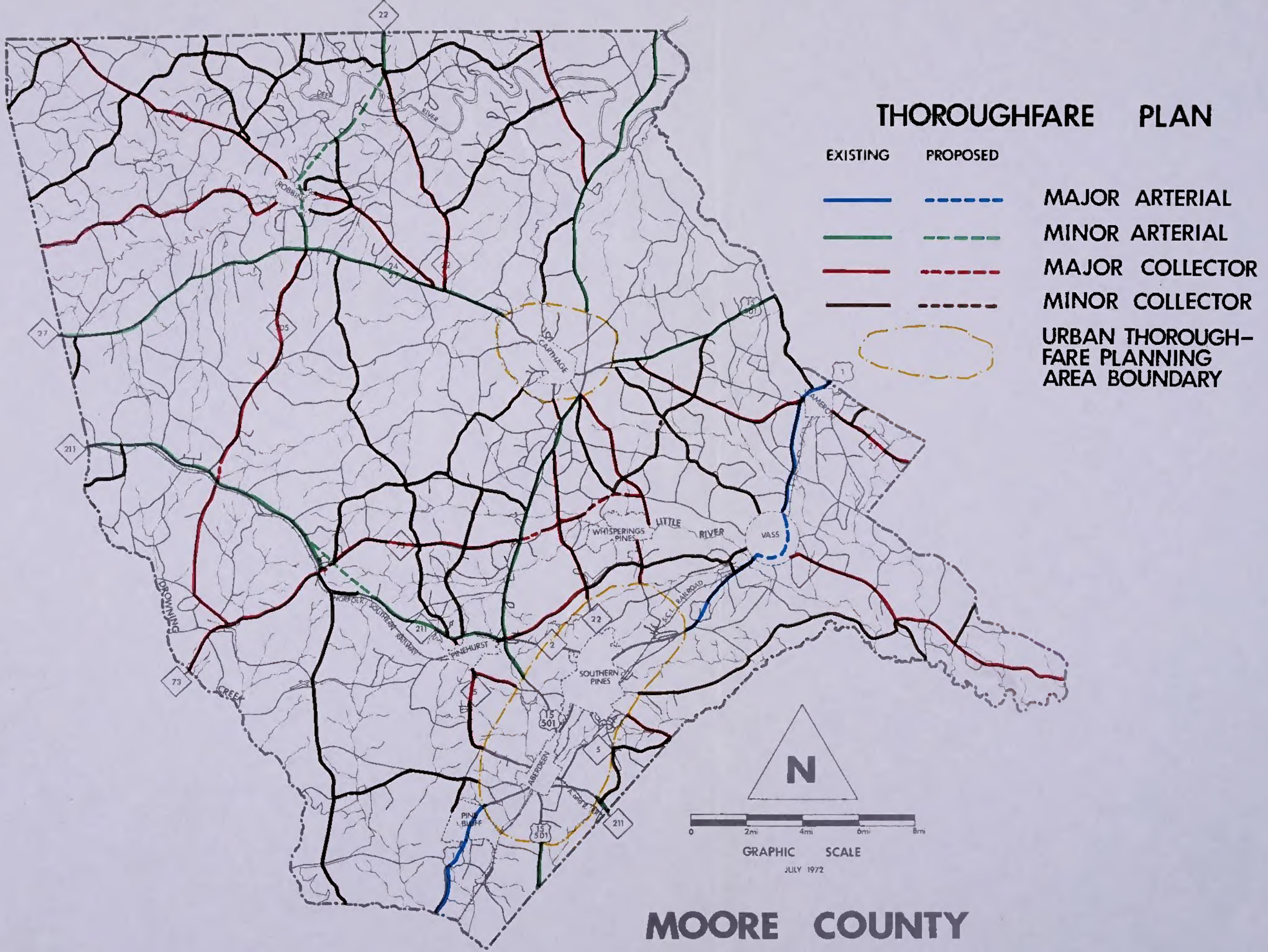

THOROUGHFARE PLAN
EXISTING
PROPOSED
MAJOR ARTERIAL
MINOR ARTERIAL
MAJOR COLLECTOR
MINOR COLLECTOR
URBAN THOROUGHFARE PLANNING AREA BOUNDARY
ROBBINS
CARTHAGE
WHISPERINGS PINES
LITTLE RIVER
VASS
CAMERON
PINEHURST
SOUTHERN PINES
ABERDEEN
PINE BLUFF
DEEP RIVER
DROWNING CREEK
NORFOLK SOUTHERN RAILWAY
S.C.L. RAILROAD
N
GRAPHIC SCALE
JULY 1972
MOORE COUNTY

FIGURE 1

a specific level of service. This permits savings in rights-of-way, construction, and maintenance costs, protects residential neighborhoods, and encourages stability in travel and land use patterns. (2) Local officials are informed as to future improvements. Developers can design subdivisions to function in a non-conflicting manner. School and park officials can better locate their facilities. Irretrivable damage to property values and community appearance, as is sometimes associated with improvements programs, can be minimized.

County Thoroughfare Planning Concept

Streets, roads, and highways perform two primary functions--they provide traffic service and land service. These two functions, when combined are basically incompatible. The conflict is not serious if both traffic and land service demands are low. But when traffic volumes are high, conflicts created by uncontrolled and intensely used abutting property result in intolerable traffic flow friction and congestion.

The underlying concept of the thoroughfare plan is that it provides a functional system of streets, roads and highways which permit travel from origins to destinations with directness, ease, and safety. Different elements in the system are designed and called on to perform specific functions and levels of service, thus minimizing the traffic and land service conflict.

Within the county plan, elements are considered to be either urban or rural. In the urban planning area, the local municipality generally has planning jurisdiction. Outside the urban planning, the County has planning jurisdiction. In those urban areas where no urban thoroughfare plan has been developed, elements are generally considered to be rural and under the planning jurisdiction of the county. When a thoroughfare plan is developed for an urban area that has not previously had a plan, then the area defined by that plan would be considered urban and come under the planning juristiction of the municipality.

Within the urban and rural systems, thoroughfare plan elements are classified according to the specific function which they are to perform. A discussion of the elements and functions of the two systems follows:

Rural Thoroughfare Classification System

The rural system consists of those facilities outside the urban thoroughfare planning area boundaries. They are classified into four major systems: principal arterials, minor arterials, major and minor collector roads, and local roads. Table 1 indicates generally accepted statewide mileage on these systems.

Table 1.
Rural System Road Mileage Distribution

Systems	Percentage of Total Rural Miles
Principal arterial system	2-4
Principal arterial system plus minor arterial road system	6-12
Collector (major plus minor) road system	20-25
Local road system	65-75

Rural Principal Arterial System: The rural principal arterial system consists of a connected network of continuous routes which serve corridor movements having trip lengths and travel density characteristics indicative of substantial statewide or interstate travel. The principal arterial system should serve all urban areas of over 50,000 population and a large majority of those with a population greater than 5,000. The Interstate System constitutes a significant portion of the principal arterial system.

Rural Minor Arterial System: The minor arterial system in conjunction with the principal arterial system, forms a network which link cities, larger towns, and other major traffic generators such as large resorts. The minor thoroughfare system generally serves interstate and intercounty travel and serves travel corridors with trip lengths and travel densities somewhat less than the principal arterial system.

Rural Collector Road System: The rural collector routes generally serve travel of primarily intracounty rather than statewide importance and constitute those routes on which predominant travel distances are shorter than on the arterial routes. This system is subclassified into major collector roads and minor collector roads.

Major Collector Roads: These routes (1) provide service to the larger towns not directly served by the higher systems and to other traffic generators of equivalent intracounty importance, such as consolidated schools, shipping points, county parks, important mining and agricultural areas, etc; (2) link these places with nearby larger towns or cities with routes of higher classification; and (3) serve the more important intracounty travel corridors.

Minor Collector Roads: These routes (1) collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road; (2) provide service to the remaining smaller communities; and (3) link the locally important traffic generators with their rural hinterland.

Rural Local Road System: The local roads comprise all roads not on one of the higher systems.

PERTINENT MOORE COUNTY DATA

The following report sections have been incorporated to lend further support to the need for and implementation of the proposed Moore County Thoroughfare Plan and priority rating evaluation presented later in this report. Data for these paragraphs were obtained from the previously prepared Sketch Development Plan for Moore County as well as other authoritative sources as noted.

Population

The population of Moore County has been on an upswing since 1910. However, as can be seen in Table 2, one half of the Townships in Moore County lost population between 1960 and 1970. By far the largest growth between 1960 and 1970 occurred in Sandhill and McNeills Townships.

Table 2.
Township Population Data

Township	1910	1920	1930	1940	1950	1960	1970
Carthage	3152	3925	3985	4769	4913	4788	4640
Bensalem	2006	2220	2493	2574	2297	2565	2903
Sheffields	2218	2513	2745	3687	4057	4418	4607
Ritters	1489	1670	1542	1652	1475	2000	2056
Deep River	1101	942	788	682	454	426	357
Greenwood	1330	1643	2053	2266	2347	2058	1934
McNeills	2054	2943	6045	6314	7716	8895	10221
Sandhill	2038	2642	4554	4117	5379	5476	6442
Mineral Springs	1592	2890	4000	4908	4491	5419	5092
Little River	--	--	--	--	--	688	796
Total	17010	21388	28215	30969	33129	36733	39048

Source: Population of Counties and Minor Civil Divisions, Division of Community Planning, January, 1962.

Population Projection: There are three population projections available for Moore County. The North Carolina State Highway Commission has projected a 1990 population of 43,200. The U.S. Department of Commerce and the U.S. Department of Agriculture in a joint project have projected a population of 49,000 in 1990. The North Carolina Department of Natural and Economic Resources, Division of Community Services has projected a population of 45,365 persons for Moore County in 1992. The Division's projection is based on the average of arithmetic and geometric projection methods applied by township. Population changes listed in the 1940 through 1970 Census were used for the basis of the projection.

All three of the projections are based on past trends and therefore do not reflect the growth of Pinehurst and Lake Surf expected by the developers. Diamondhead Corporation is projecting a population of 36,000 persons. The developers of Lake Surf have projected a population of 18,000 in twenty years.

It will be assumed for planning purposes the above projections for the developments represent a maximum seasonal population, and should be used in planning for the capacity of facilities in the developments. It will also be assumed that 10 to 20 percent of the projected population will be permanent year round residents and should be considered in planning county wide facilities.

For the purpose of this report, it will be assumed that the 1992 population of Moore County will fall in a range between the Division of Community Services' projection plus 10 percent of the projected Pinehurst-Lake Surf population, and the projection of the Departments of Commerce and Agriculture, plus 20 percent of the projected Pinehurst-Lake Surf populations. The projected populations are outlined in Table 3.

Table 3.
Projected Population of Moore County, 1992

Townships	Low Projection: Trend	Low Projection: New Development	High Projection: Trend	High Projection: New Development	Range of Increase
Carthage	4,478		4,802		-162 to 162
Bensalem	3,351		3,577		488 to 674
Sheffields	5,320		5,684		713 to 1,077
Ritters	2,582		2,793		526 to 737
Deep River	208		245		-149 to -112
Greenwood	1,648		1,666		-286 to -268
McNeills	13,704		14,749		3,483 to 4,528
Sandhill	7,805		8,722		1,363 to 2,280
Mineral Spgs.	5,482	3,600	5,929	7,200	3,990 to 8,037
Subtotal	45,365	5,400	49,000	10,800	11,717 to 20,752
Total	50,765		59,800		11,717 to 20,752

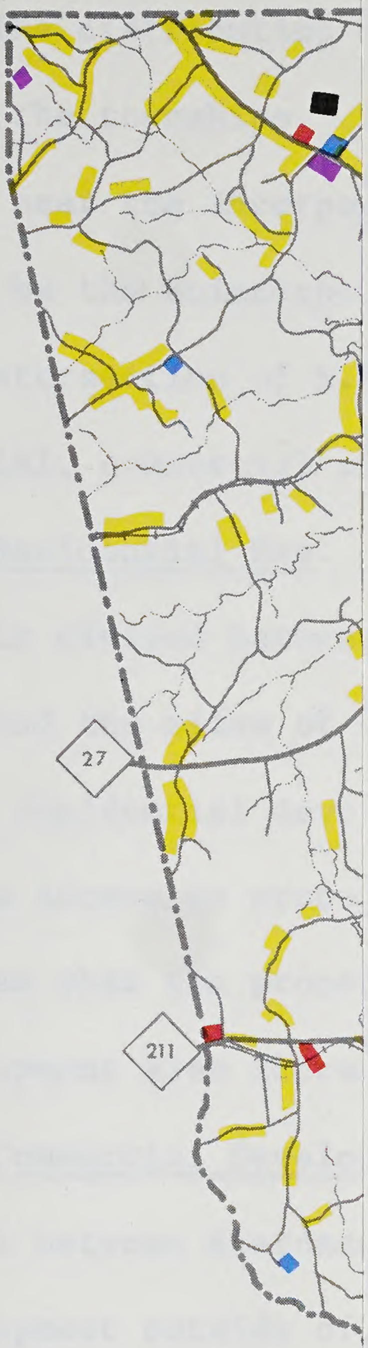
Source: North Carolina Department of Natural and Economic Resources, Division of Community Services.

Existing Land Use

Traffic generation on a particular road is closely related to the use being made of abutting property. Each particular type of land use is unique in its power of traffic generation and the attraction of one area to another varies with the intensity of land development and spatial separation of the areas. For transportation planning, it is therefore necessary to classify land use into various categories.

The Sketch Land Development Plan for Moore County (Figure 2) classified the land uses into 8 categories: residential; commercial; industrial; institutional; public recreation; semi-public and private recreation; transportation; communications, and public utilities; and military.

There are 483,700 acres of land and water in Moore County. In 1971 225,043 acres were in farmland. The balance of the land, 46.5 percent of the total, is devoted to other uses.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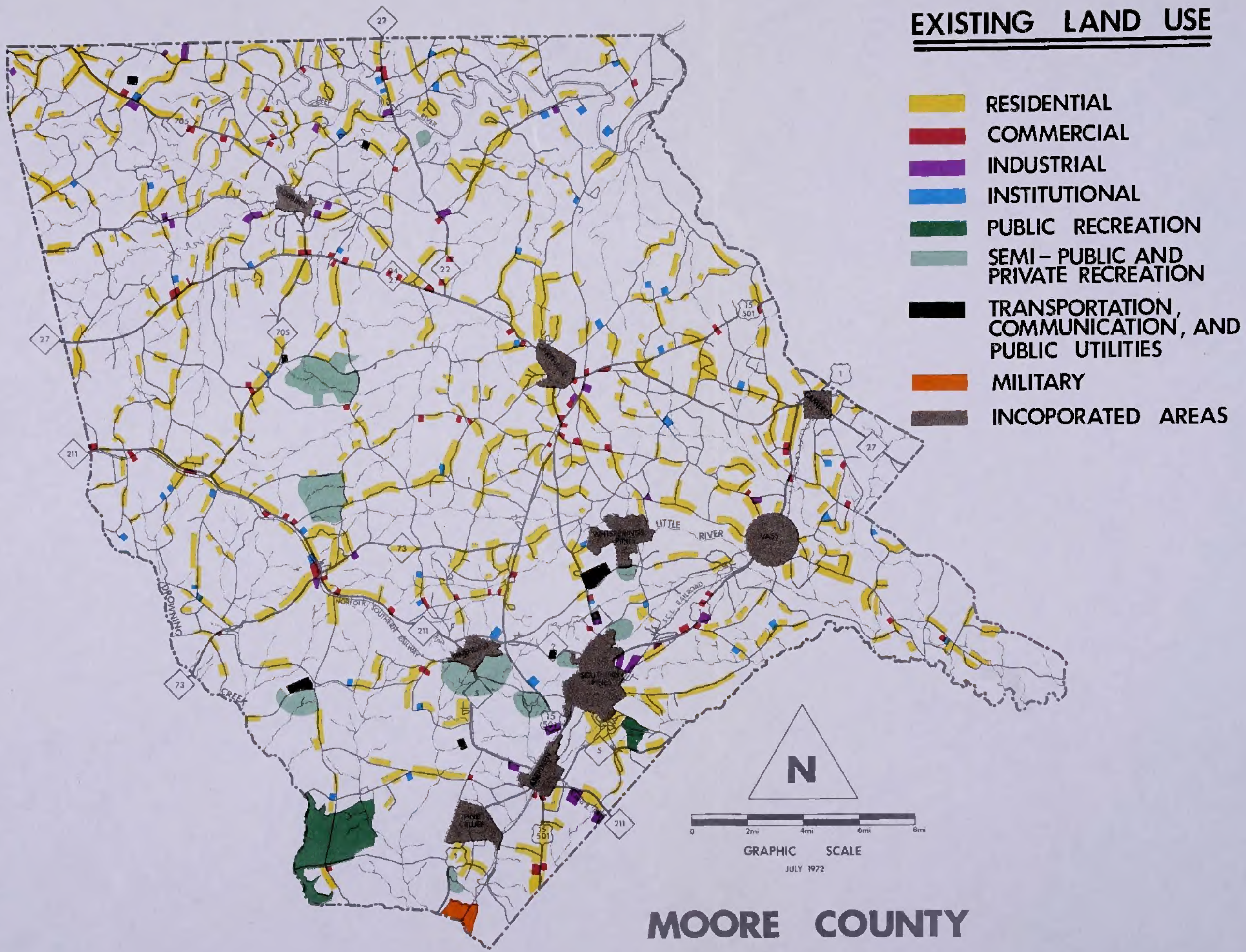

EXISTING LAND USE
RESIDENTIAL
COMMERCIAL
INDUSTRIAL
INSTITUTIONAL
PUBLIC RECREATION
SEMI - PUBLIC AND PRIVATE RECREATION
TRANSPORTATION, COMMUNICATION, AND PUBLIC UTILITIES
MILITARY
INCOPORATED AREAS
N
0
2mi
4mi
6mi
8mi
GRAPHIC SCALE
JULY 1972
MOORE COUNTY
LITTLE RIVER
NORFOLK SOUTHERN RAILWAY
DROWNING CREEK
VASS
22
27
211
73
705
15 501
1
5

FIGURE 2

The distribution of developed land follows the population distribution among the townships. The greatest concentration of development is located in or near the incorporated areas in the county. An exception to this would be the unincorporated area of West End, located in the vicinity of the intersection of N.C. 73 and 211. West End contains a mixture of residential, commercial and industrial land use.

Residential Use. Residential development in Moore County is almost equally divided between incorporated municipalities and surrounding development and the miles of rural roads. Many rural roads have been subject to strip residential development. (See Figure 2). This type of development limits access to property located at the rear, and will present a problem when the property to the rear is developed in future years. Strip development also increases the cost of extending utilities and other services.

Commercial Development. Except for a commercial area at West End and on U.S. 1 between Aberdeen and Southern Pines, there is no major commercial development outside of the incorporated towns. Most of the rural commercial development consists of gas station grocery store combinations along the major highways and at intersections of rural roads. The lack of strip development provides a good foundation for the concentration of future commercial developments in well designed, convenient shopping centers.

Industrial Development. The majority of Moore County's industry can be found along U.S. 1 from Southern Pines south to the county line and in the northwestern part of the county near Robbins. The proposed county water and sewer system will greatly increase the potential for locating industry in the County.

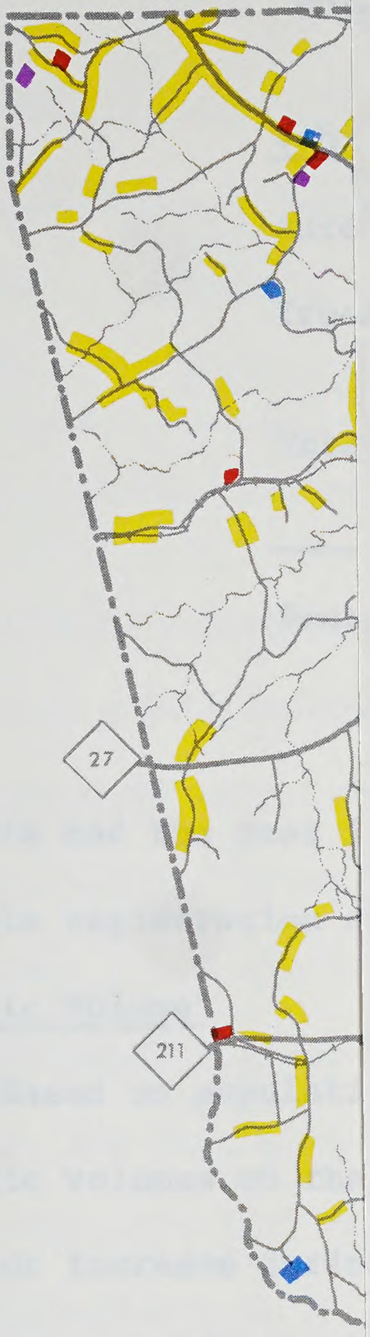
Future Development

The amount of traffic generated by, or attracted to a particular portion of Moore County depends on the location, character and intensity of land use. It is therefore necessary to anticipate future land development in order to realistically estimate future travel patterns and traffic volumes. Guidelines to be followed in forecasting land development are: 1) expected population; 2) historical trends of the various land use developments; 3) availability and effectiveness of legal controls, such as subdivision regulations and zoning ordinance; 4) topographic features and; 5) availability of utilities and transportation facilities. Figure 3 depicts the future land use as illustrated in the Sketch Development Plan of Moore County. Future residential and recreational development trends are evident in Moore County. Major areas of growth are indicated around the incorporated areas of Pinehurst, Southern Pines, Aberdeen, Whispering Pines, Lake Surf, and like residential-recreational developments of Moore County.

Future industrial development is expected to occur where access to major transportation facilities are available. The area west of Aberdeen, North Carolina, along N.C. 5 is expected to be developed for industrial use along with several areas located in close proximity to the major municipalities with good access to both rail and major highway facilities. Good intra-county highway service should be provided to all sites, making employment opportunities for county residents safer and more convenient.

Motor Vehicles

Motor vehicle registration for 1960, 1965, and 1969 are given in Table 4. Both automobile and truck registration increased by 65 percent from 1960 to 1969. The average number of persons per registered vehicle in 1969 was 1.75. Based upon the projected 1990 population, the average number of persons per



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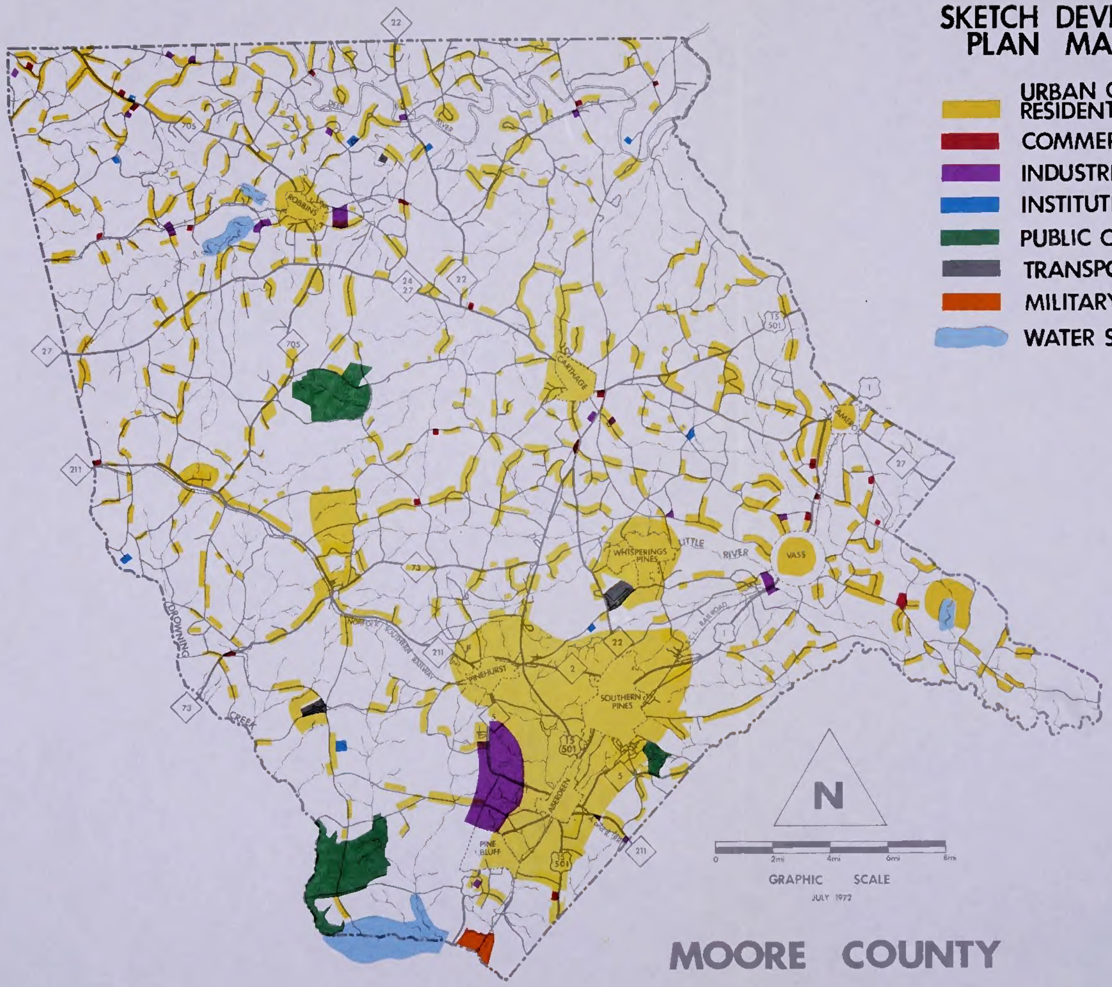
211

SKETCH DEVELOPMENT PLAN MAP 1992



URBAN CLUSTERS AND RESIDENTIAL AREAS
COMMERCIAL
INDUSTRIAL
INSTITUTIONAL
PUBLIC OPEN SPACE
TRANSPORTATION,
MILITARY
WATER STORAGE

FIGURE 3

Table 4.
MOTOR VEHICLE REGISTRATION - MOORE COUNTY

Vehicle Type	1960	1965	1969
Auto	11,684	14,307	17,654
Truck	2,950	3,888	4,665
Total vehicles	14,634	18,195	22,319

Source: North Carolina Department of Administration, Statistical Abstract, 1971.

vehicle and the past increase of vehicle registration, a definite increase in vehicle registration should occur during the planning period (1973-1990).

Traffic Volume

Based on population projections and past motor vehicle registration trends, traffic volumes on the majority of roads in Moore County should experience only a minor increase during the 1973-1993 planning period. Exception to this statement would behighways U.S. 1 and, N.C. 15-501, and N.C. 211, which would experience the impact of regional and interstate traffic growth; while their close proximity to the rapidly developing urban centers and recreational activities of Pinehurst, Southern Pines, and Aberdeen are also expected to impact a major increase in traffic volume if projected development occurs. This is especially true during the summer months with a large influx of tourists.

Existing Road System

Total road mileage within the county was 1,077.83. Of this total, 173.43 miles or 16.1% were on the state primary road system which consists of all U.S. and N.C. numbered highways.

Table 5.
Moore County Highway Mileage

Primary Highway System			Secondary Road System			
Type			Type			
(Total)	Municipal (Total)	Total Mileage	Rural Total	Municipal (Total)	Unpaved Rural & Municipal	Total Mileage
153.78	19.65	173.43	858.10	46.30	275.76	904.40

Source: North Carolina Department of Administration, Statistical Abstract, 1971.

The secondary road system consists of 904.40 miles or 83.9% of the total. Secondary roads include all highways designated as State Road (SR). A total of only 65.95 miles or 6.1% of the total road system is within the jurisdiction of the municipalities. There were 275.76 miles of unpaved secondary roads which represent 32.1% of the secondary road system and 25.5% of the total road system.

Although highway planning pertains to the entire road system within the County, the Thoroughfare Plan and Priority Improvements Scheduling is directly concerned with the 380.0 miles of roads or 35.2% of the total road mileage above the classification of "local road". (Defined in Section II). Figure 1 shows the proposed Moore County Thoroughfare Plan with designations for all arterial and collector highways in the county.

Of the total 380.0 miles, 15.75 or 4.1 percent are classified major arterial highways, 74.75 or 19.7 percent are minor arterial highways; 130.50 miles or 34.3 percent represent major collector roads and 159.0 miles or 41.9 percent are designated minor collector roads.

Problems with the existing road system in Moore County include: Jogged intersections (intersections that require a vehicle to travel a short distance on the cross roads, at slow speeds, before continuing through highway movement); which have caused a significant number of accidents at 38 locations in the county (See Figure 4). An additional major problem involves inadequate land widths which exist in comparison to average daily traffic volumes.

Intersection Problems

Data provided by the State Highway Commission indicates that 38 intersections within the County experienced ten or more accidents in recent years, (January 1, 1967 to December 31, 1972).

Table 6 indicates the specific intersection location and the number of accidents reported for that time period. Figure 4 locates these intersections within the County. Nineteen of these intersections had 15 or more accidents. All totaled, there were 445 accidents at these nineteen intersections alone, representing tens-of-thousands of dollars in damage.

There were over 600 intersection accidents reported during the same period throughout the remainder of the County system.

Many of those same intersections experiencing high accident rates, plus a number of other intersections, do not permit straight cross traffic movement. In these cases, vehicles must turn onto the crossroad, maintain a slow speed and then turn again onto the through road, at the most, only a few hundred feet away. Crossing a controlled intersection is hazardous enough, but in the above described cases, the accident potential increases tremendously. As shown on Figure 4, 5 of the 38 intersections experiencing a significantly high number of accidents are off-set, and involve primary roads for the off-set (Tee) portions. Many other off-set intersections indicated on Figure 4 include highways designated major collectors or a higher classifications on the proposed Thoroughfare Plan Map (Figure 1). It is recommended that all such intersections be inspected for possible change during the planning period to hasten construction of safety features and hopefully reduce the accident potentials.

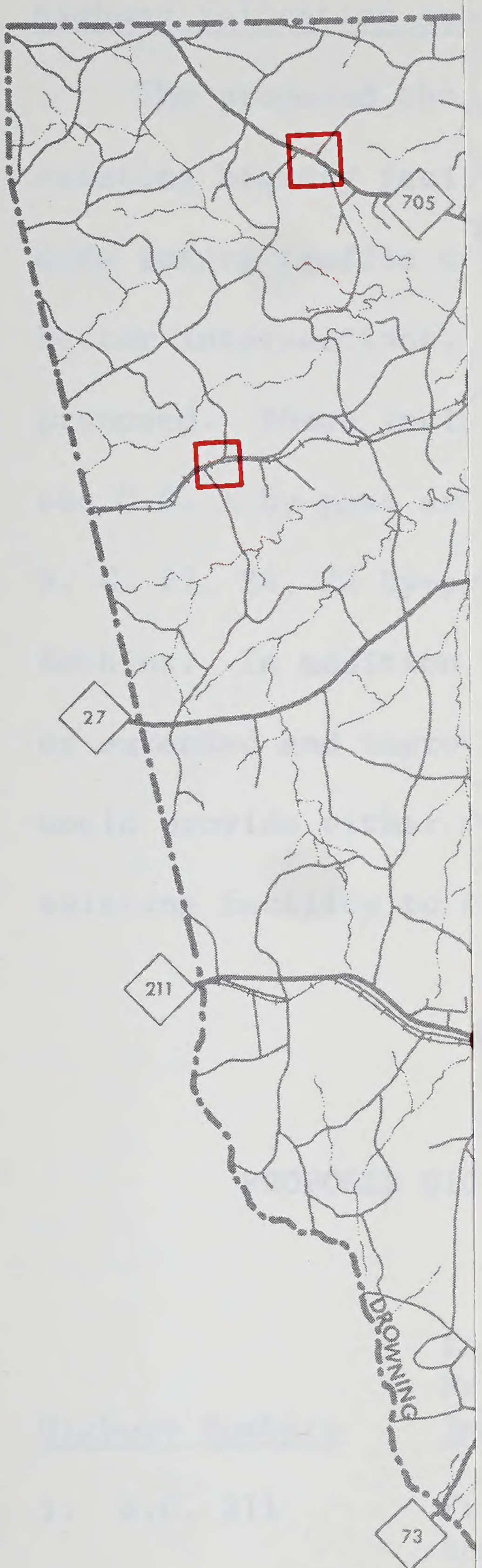
Figure 4 shows those intersections which should be analyzed in detail to determine the possibilities of relocating one or both roadways for construction of straight intersection crossing.

Table 6.
High Accident Rate Intersection - Moore County 1967-1972
(Ten or more accidents reported)

Highway Intersection	Number of Accidents Reported
<u>Rural Primary Road System</u>	
1. U. S. 1/N. C. 27	15
2. U.S. 1/SR 1102	20
3. U. S. 1/SR 1824	12
4. U. S. 1/SR 1825	22
5. U. S. 1/SR 1852	11
6. U. S. 1/SR 1853	18
7. U. S. 1/SR 2026	25
8. N. C. 15/N. C. 2	21
9. N. C. 15/N. C. 22	19
10. N. C. 15/N. C. 24,27	41
11. N. C. 15/N. C. 73	10
12. N. C. 15/N. C. 211	22
13. N. C. 15/SR 1205	54
14. N. C. 15/SR 1653	10
15. N. C. 15/SR 1661	10
16. N. C. 15/SR 1804	11
17. N. C. 2/SR 1848	14
18. N. C. 5/SR 1103	15
19. N. C. 5/SR 1115	13
20. N. C. 22/SR 1843	19
21. N. C. 27/N. C. 22	15
22. N. C. 27/N. C. 705	17
23. N. C. 73/N. C. 211	42
24. N. C. 211/N. C. 705	26
25. N. C. 211/SR 1004	13
26. N. C. 211/SR 1135	15
27. N. C. 211/SR 1209	10
28. N. C. 211/SR 1216	10
29. N. C. 211/SR 2063	21
30. N. C. 211/SR 2075	10

Table 6
High Accident Rate Intersection - Moore County 1967-1972 (Cont)

High Intersection	Number of Accidents Reported
Rural Primary Road System	
31. N. C. 705/SR 1003	11
32. N. C. 705/SR 1425	12
33. N. C. 705/SR 1451	12
	596
Rural Secondary Road System	
34. SR 1001/SR 2011	10
35. SR 1002/SR 1434	14
36. SR 1138/SR 1139	10
37. SR 1843/SR 1802	10
38. SR 2042/SR 2053	18
	62
Accident Total	658

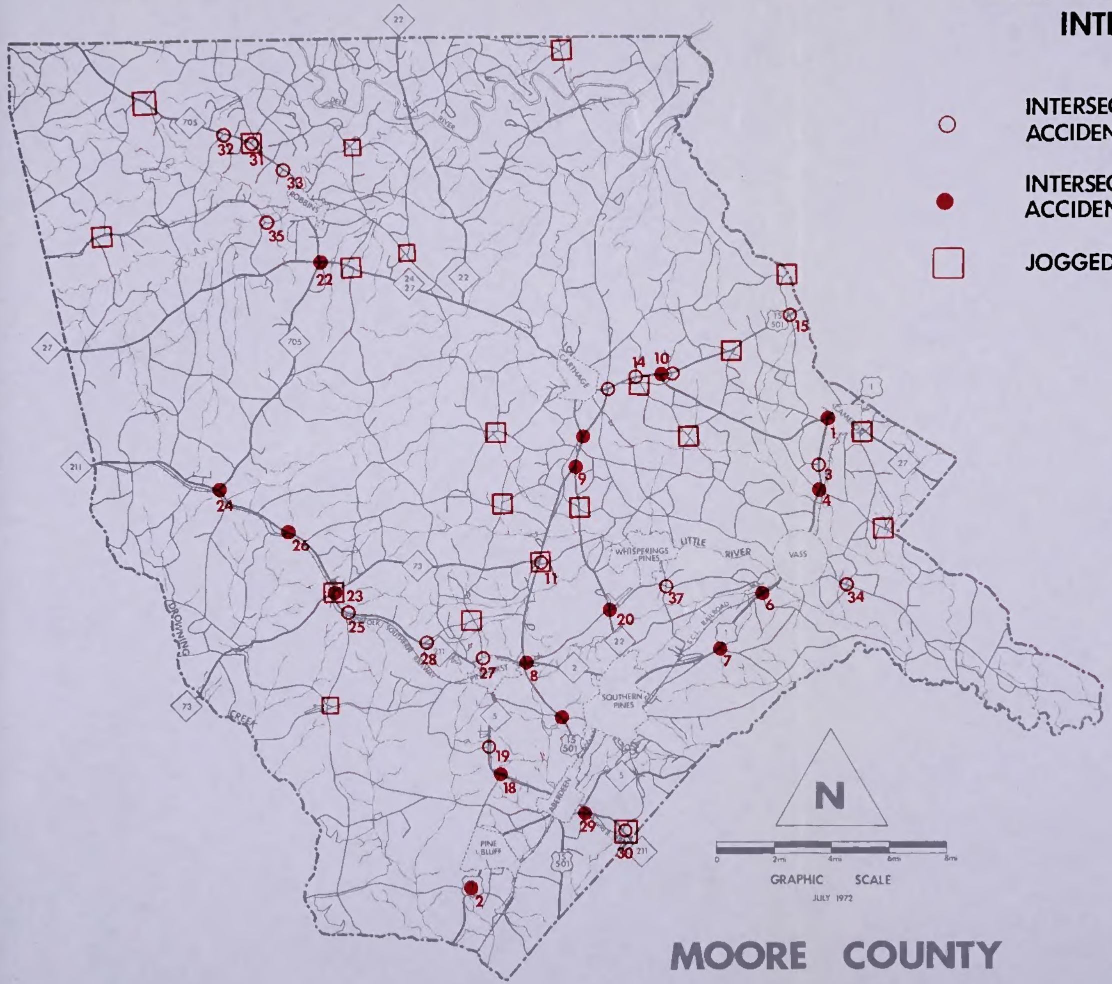

705
27
211
DROWNING
73

HIGH ACCIDENT RATE INTERSECTION

○ INTERSECTION WITH 10 – 14 ACCIDENTS (1967 – 1972)

● INTERSECTION WITH 15 OR MORE ACCIDENTS (1967 – 1972)

□ JOGGED INTERSECTION



MOORE COUNTY

FIGURE 4

Highway Relocation and By-Pass

The proposed thoroughfare plan (Figure 1) indicates that a number of existing highway facilities need some minor or major changes to better accommodate future traffic conditions in addition to widening lanes and developing better intersections. As shown in Table 7 and Figure 5, five by-pass roads are proposed. These include the U. S. 1 by-pass around Aberdeen and Southern Pines, the U.S. 1 by-pass around Vass, the N. C. 211 by-pass around West End, the N. C. 27, 24, 22 by-pass around Carthage, and the N. C. 705 by-pass around Robbins. In addition, the plan indicates that six segments should be relocated or extended and improved to standard quality (see Figure 5). These improvements would provide either more efficient through traffic movements or connect an existing facility to a higher rated highway.

Table 7.
PROPOSED HIGHWAY RELOCATIONS, BY-PASSES, AND INTERSECTION IMPROVEMENTS, MOORE COUNTY, 1973

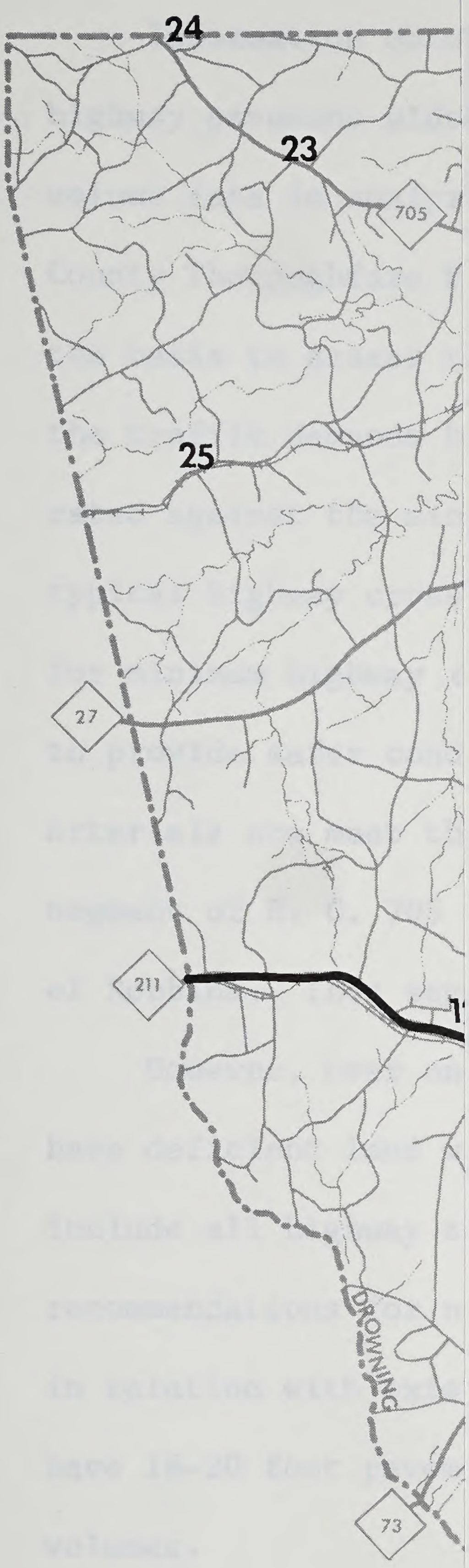
Highway Numbers	Location of Necessary Improvement	Type of Improvement	Remarks
1. N.C. 211	From Pinehurst to Aberdeen	By-pass around Pinehurst from Pinewild to Vina Vista	Rerouting N. C. 211 to by-pass Pinehurst would route the east-west traffic flow by Pinehurst and eliminate traffic congestion.

Table 7
Proposed Highway Relocations, By-Passes, and Intersection Improvements, Moore County, 1973, (Continued)

Highway Numbers	Location of Necessary Improvement	Type of Improvement	Remarks
2. U.S. 1	City of Aberdeen	By-pass around the northwest of Aberdeen.	Approximately 10.2 miles.
3. N.C. 211	From Pinehurst to Montgomery County Line.	Upgrading of N.C. 211 to a four land highway.	Would improve through movements of east-west traffic.
4. SR 1001	From Vass to Cumberland County Line.	Upgrading of SR 1001.	Would improve access to Fayetteville.
5. N.C. 22	Pinehurst and Southern Pines airport.	Reroute NC 22 to by-pass the county airport and allow room for growth.	Approximately 3.5 miles.
6. U.S. 1	City of Vass.	By-pass around eastern and southern portions of Vass.	Approximately 3.2 miles.
7. N.C. 22, 24, 27.	City of Carthage.	By-pass around northern portion of Carthage.	Approximately 2.5 miles.
8. N.C. 211	Town of West End.	By-pass around north and eastern portions of West End.	Approximately 3.0 miles.
9. N.C. 705 and SR 1476	City of Robbins.	By-pass around eastern portion of Robbins.	Approximately 1.5 miles.
10. SR 1476	Between the City of Robbins and NC 22.	Highway realignment and straightening.	Approximately 5.0 miles.
11. N.C. 73	At intersection of SR 1839.	Upgrading of SR 1838.	Would improve through movements on the major collector road.

Table 7
Proposed Highway Relocations, By-Passes, and Intersection Improvements, Moore County, 1973, (Continued)

Highway Numbers	Location of Necessary Improvement	Type of Improvement	Remarks
12. N.C. 705	Elberta	Intersection realignment with N.C. 211.	Would eliminate highway jog onto N.C. 211.
13. SR 2007/ SR 1825	Intersection of roads.	Realignment for intersection.	Would eliminate highway job onto SR 1825.
14. SR 2000/ NC 27	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto NC 27.
15. SR 1007/ SR 1661	Intersection of roads.	Realignment for intersection.	Would eliminate highway job onto SR 1007.
16. SR 1815/ NC 15-501	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto NC 15-501.
17. SR 1809/ SR 1805	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto SR 1805.
18. SR 1251/ SR 1209	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto SR 1209.
19. SR 1229/ SR 1240	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto SR 1240.
20. SR 1491/ SR 1477	Intersection of roads.	Realignment for intersection.	Would eliminate highway job onto SR 1477.
21. SR 1264/ NC 22, 24, 27	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto NC 22, 23, 27.
22. SR 1484/ SR 1479	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto SR 1479.
23. SR 1427/ NC 705	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto NC 705.
24. SR 1412/ NC 705	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto NC 705.
25. SR 1403/ SR 1002	Intersection of roads	Realignment for intersection.	Would eliminate highway jog onto SR 1002.
26. SR 1123/ SR 1004	Intersection of roads.	Realignment for intersection.	Would eliminate highway jog onto SR 1004.


24
23
705
25
27
211
DROWNING
73

PROPOSED HIGHWAY BY-PASS, RELOCATION, AND INTERSECTION IMPROVEMENTS

NOTE: SEE TABLE 7 FOR LOCATION AND PROJECT DESCRIPTION

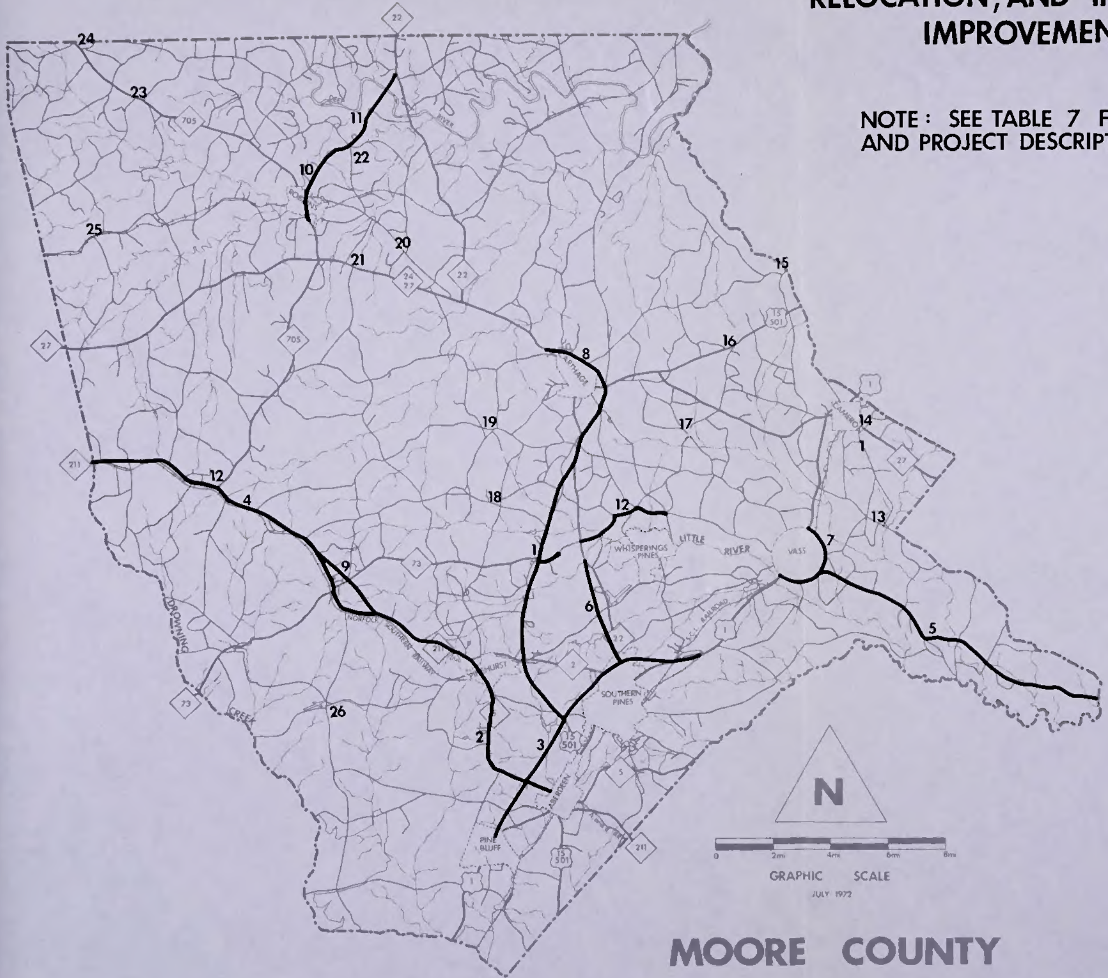
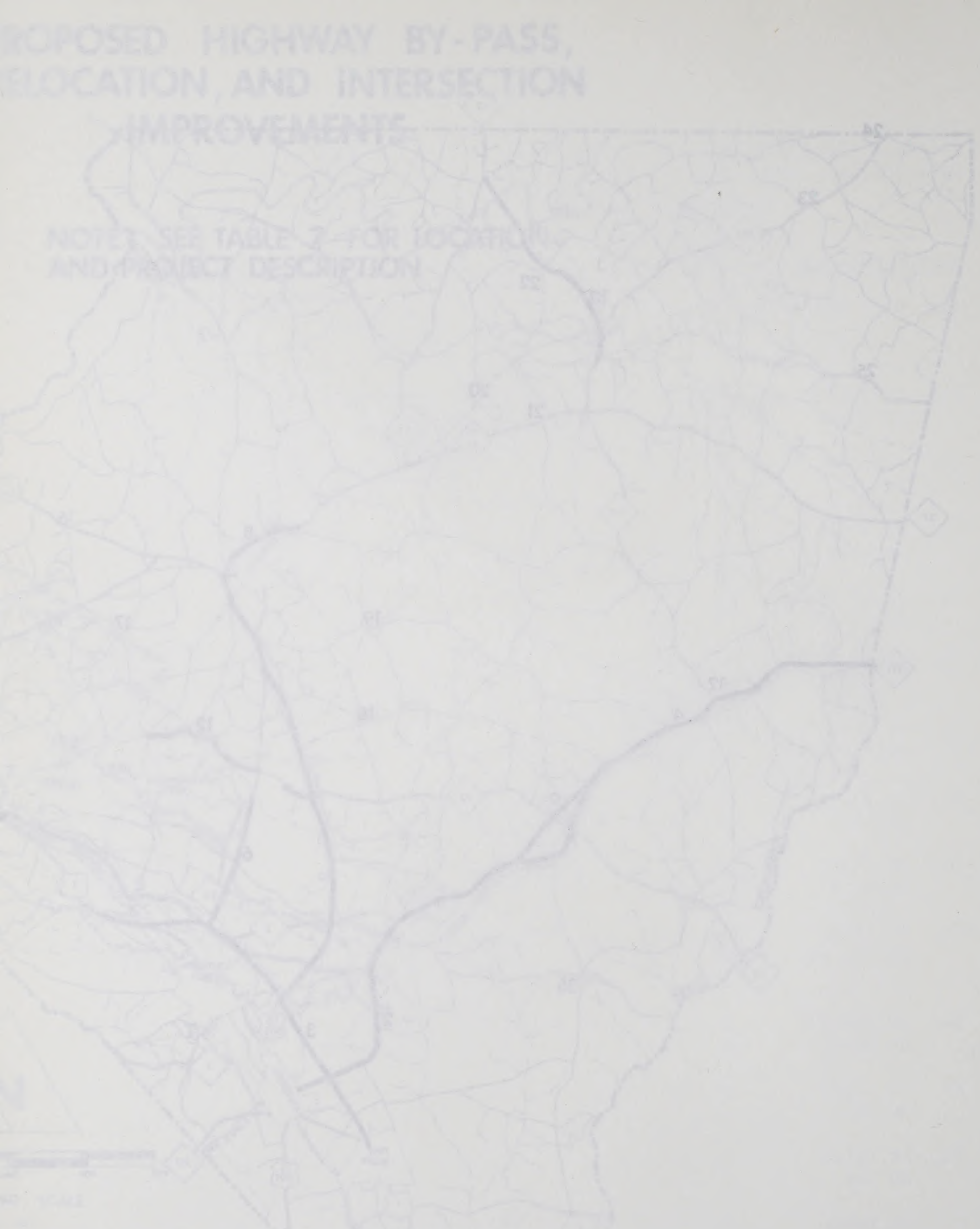


FIGURE 5


ROPOSED HIGHWAY BY-PASS,
ELOCATION, AND INTERSECTION
IMPROVEMENTS
NOTE: SEE TABLE 7 FOR LOCATION
AND PROJECT DESCRIPTION
24
23
22
21
20
19
18
17
12
3
COUNTY

FIGURE

Lane Deficiencies

Information obtained from the State Highway Commission pertaining to existing highway pavement widths was utilized in conjunction with 1970 and 1971 traffic volume data in analyzing lane deficiencies for the highways denoting the Moore County Thoroughfare Plan (above local road designation). This information provided the basis to assess the existing highway network's ability to adequately handle the traffic demands being placed upon it. Based upon the existing volumes rated against the minimum tolerable lane widths as recommended by SHC Table 8 and typical highway cross sections, Figure 6, as adopted by the State Highway Commission for minimum highway design requirements, many existing roads should be improved to provide safer conditions. All roadways designated Major Arterials and Minor Arterials now meet the minimum design requirements with the exception of a segment of N. C. 705 which is a minor arterial from N. C. 24 - 27 to the City of Robbins. This segment has a 20 foot pavement width.

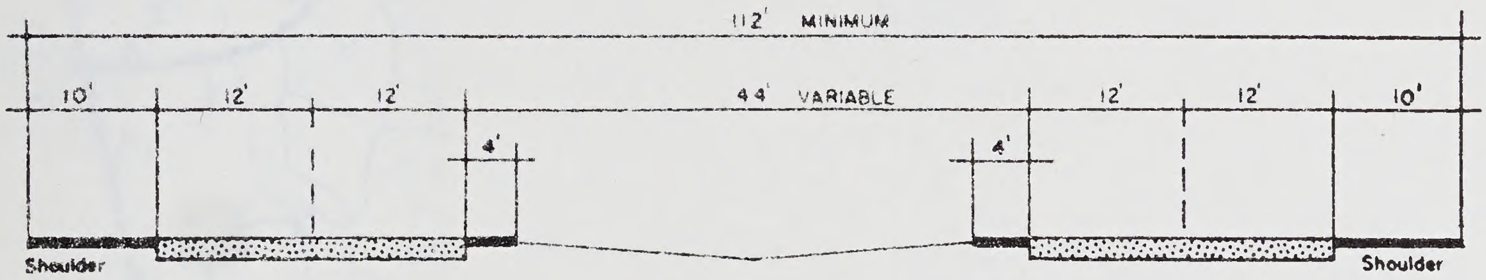
However, over one-half or 7,016 miles of the major collector road system have deficient land widths in comparison to existing traffic volumes. These include all highway segments indicated in Table 9 and on Figure 7, with recommendations for new 24-foot pavement widths as desirable at this time in relation with existing traffic volumes. In many instances, these facilities have 16-20 foot pavement width which are inadequate for the existing traffic volumes.

Table 8
MINIMUM TOLERABLE LANE WIDTHS

Design Year ADT	Principal Arterials	Minor	Minor Arterials	Collectors
Over 2,000	11		11	11
400 - 2,000			10	10
100 - 400			10	9
Below 100				9

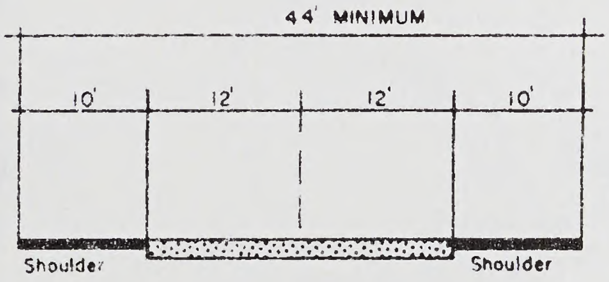
Source: North Carolina State Highway Commission

In addition, 7 segments of the minor collector road system are in need of widening. This deficiency is caused by the existence of 16 foot pavement. Table 10 describes the minor collectors that are in need of improvements.



FOUR LANES DIVIDED WITH MEDIAN – RURAL

(A)



TWO LANES – RURAL

(B)

TYPICAL HIGHWAY CROSS SECTIONS

SOURCE: STATE HIGHWAY COMMISSION

18
705
21
4
27
211
3
DROWNING
73

MAJOR THOROUGHFARE NEEDS 1973

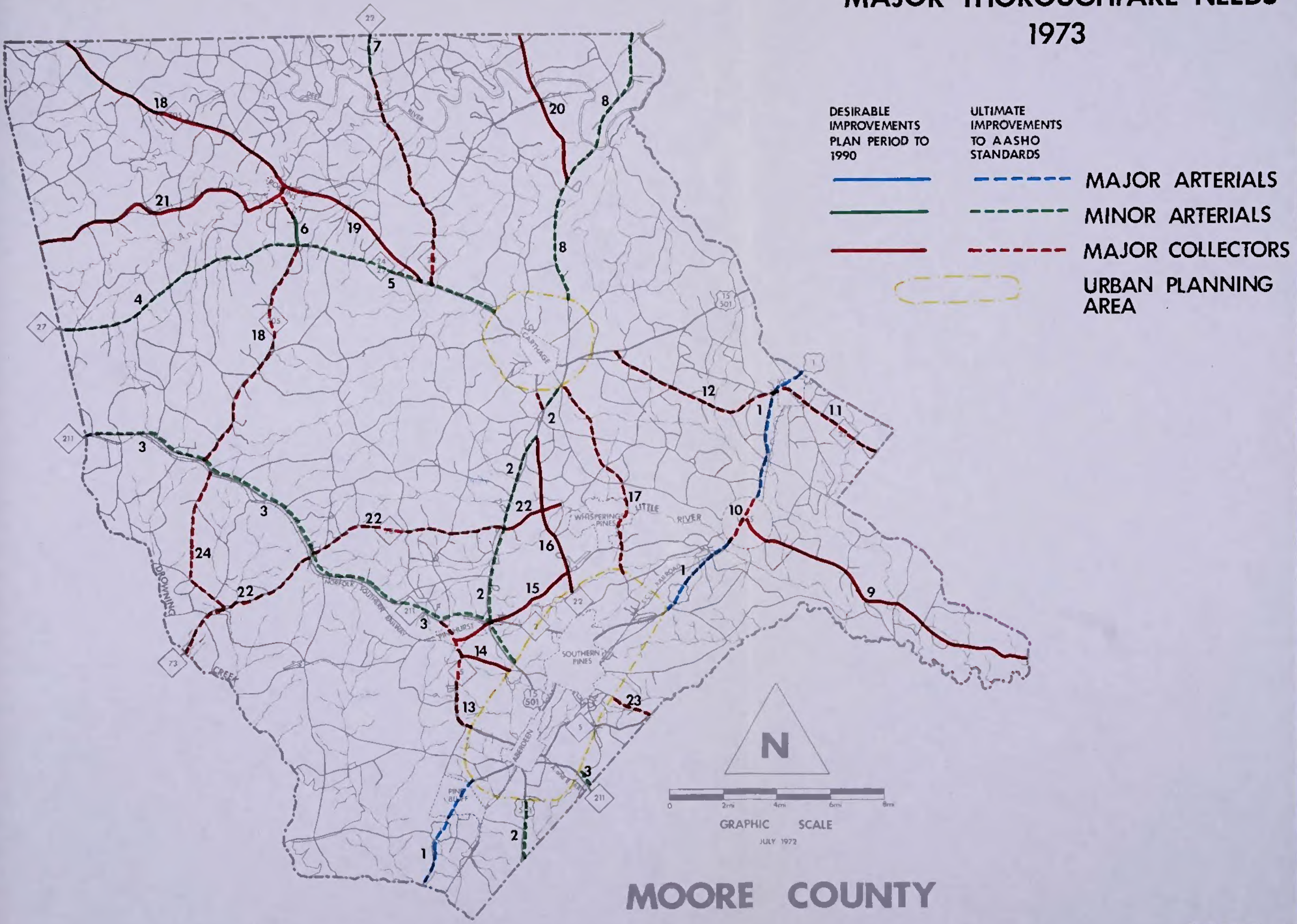


FIGURE 7

Table 9.
MAJOR THOROUGHFARE IMPROVEMENT NEEDS FOR MAJOR AND MINOR ARTERIALS AND MAJOR COLLECTOR HIGHWAYS

Roadway and Section	Existing Road Conditions: 1970-1971 ADTV Traffic Count	Existing Road Conditions: Pavement Width (Feet)	Existing Road Conditions: Right-of-Way Width (Feet)	Length Miles	Recommendations: Minimum Cross Section	Recommendations: Desirable Right-of-Way Width	Recommendations: Ultimate Cross Section	Optimum Right-of-Way (Feet)	Remarks
MAJOR ARTERIALS									
1. U.S. 1, Richmond County/SR 1106	2,700-4,250 / 2,800-4,250	22	100	4.25	Adequate	Adequate	B	100'	Ultimate 24' pavement width
SR 1802/SR 1853	3,800-5,100 / 3,950-5,250	Varies 22-46	Varies 105-260	3.65	Adequate	Adequate	A	300'	
SR 1826/Lee County	3,300-3,600 / 3,500-3,800	Varies 22-24	100	5.4	Adequate	Adequate	B	100'	Ultimate 24' pavement width
MINOR ARTERIALS									
2. N.C. 15-501, Hoke County/SR 2078	1,550-2,300 / 1,600-2,550	24	100	2.6	Adequate	Adequate	B	100'	
SR 1205/N.C. 73	2,550-5,900 / 2,700-6,100	24	100	5.75	Adequate	Adequate	B	100'	
N.C. 73/N.C. 22-24-27	1,500-4,600 / 1,550-5,000	24	100	6.60	Adequate	Adequate	B	100'	
3. N.C. 211, Montgomery County/ N.C. 73	2,050-2,550 / 2,100-2,650	24	100-150	10.35	Adequate	Adequate	B	100'	
SR 1004/N.C. 15-501	2,950-3,000 / 2,950-3,000	24	100	5.8	Adequate	Adequate	B	100'	
Hoke County/SR 2075	2,850-3,400 / 2,950-3,400	24	60	1.0	Adequate	Adequate	B	100'	Ultimate 100' right-of-way

Table 9.

MAJOR THOROUGHFARE IMPROVEMENT NEEDS FOR MAJOR AND MINOR ARTERIALS AND MAJOR COLLECTOR HIGHWAYS (Cont'd)

Roadway and Section	Existing Road Conditions: 1970-1971 ADTV Traffic Count	Existing Road Conditions: Pavement Width (Feet)	Existing Road Conditions: Right-of-Way Width (Feet)	Length Miles	Recommendations: Minimum Cross Section	Recommendations: Desirable Right-of-Way Width	Recommendations: Ultimate Cross Section	Recommendations: Optimum Right-of-Way (Feet)	Remarks
4. N.C. 24-27, Montgomery County/ N.C. 705	1,750-1,900 / 1,900-2,000	24	100	9.5	Adequate	Adequate	B		Ultimate 24' pavement
5. N.C. 22-24-27, N.C. 705/SR 1261	2,250-3,750 / 2,250-3,750	22	60-100	8.85	Adequate	Adequate	B	100'	Ultimate 24' pavement and 100' right-of-way.
6. N. C. 705, N. C. 24-27/ SR 1435	2,500 / 2,500	20	60	1.6	B	100	-	-	Desirable 24' pavement and 100' right-of-way.
7. N. C. 22, SR 1600/ Chatam County	980-1,360 / 1,040-1,400	20	100	8.3	Adequate	Adequate	B	100'	Ultimate 24' pavement
8. SR 1644, SR 1676/ SR 1006	360-460 / 380-450	22	60	3.5	Adequate	Adequate	B	100'	Ultimate 24' pavement and 100' right-of-way.
SR 1006/Chatam County	170-230 / 170-230	22	60	7.85	Adequate	Adequate	B	100'	Ultimate 24' pavement width and 100' right-of-way.
MAJOR COLLECTORS									
9. SR 1001, Cumberland County/SR 2022	460 / 500	18	60	6.60	B	Adequate	-	100'	Desirable 24' pavement ultimate 100' right-of-way

Table 9.

MAJOR THOROUGHFARE IMPROVEMENT NEEDS FOR MAJOR AND MINOR ARTERIALS AND MAJOR COLLECTOR HIGHWAYS (Cont'd)

Roadway and Section	Existing Road Conditions: 1970-1971 ADTV Traffic Count	Existing Road Conditions: Pavement Width (Feet)	Existing Road Conditions: Right-of-Way Width (Feet)	Length Miles	Recommendations: Minimum Cross Section	Recommendations: Desirable Right-of-Way Width	Recommendations: Ultimate Cross Section	Recommendations: Optimum Right-of-Way (Feet)	Remarks
SR 2022/U.S. 1	520-1,000 / 580-1,000	18-20	60	5.75	B	Adequate	-	100'	Desirable 24' pavement ultimate 100' right-of-way.
10. U.S. 1, SR 1864/ SR 1826	3,400-4,800 / 3,500-5,000	22	100	2.1	Adequate	Adequate	B	100'	Ultimate 24' pavement width
11. N.C. 27, Harnett County/ SR 1007	810-1,300 / 860-1,300	20	100	4.0	Adequate	Adequate	B	100'	Ultimate 24' pavement width
12. N.C. 24-27, SR 1007/N.C. 15-501	880-1,000 / 900-1,000	20	60	7.1	Adequate	Adequate	B	100'	Ultimate 24' pavement width and 100' right-of-way.
13. N.C. 5, SR 1110/ N.C. 211	2,200-2,950 / 2,250-2,800	22	60	5.6	Adequate	Adequate	B	100'	Ultimate 24' pavement width and 100' right-of-way.
14. SR 1205, N.C. 15-501/ N.C. 5	1,050-1,400 / 1,100-1,600	18	60	1.7	B	Adequate	-	100'	Desirable 24' pavement width and ultimate 100' right-of-way.
15. SR 1834, N.C. 22/ N.C. 5	830-1,600 / 900-1,750			5.1	B	100	-	-	Desirable 24' pavement width and 60' right-of-way. Ultimate 100' right-of-way.

Table 9.

MAJOR THOROUGHFARE IMPROVEMENT NEEDS FOR MAJOR AND MINOR ARTERIALS AND MAJOR COLLECTOR HIGHWAYS (Cont'd)

	Existing Road Conditions				Recommendations				
Roadway and Section	1970-1971 ADTV Traffic Count	Pavement Width (Feet)	Right-of-Way Width (Feet)	Length Miles	Minimum Cross Section	Desirable Right-of-Way Width	Ultimate Cross Section	Optimum Right-of-Way (Feet)	Remarks
16. N. C. 22, SR 1843/ N. C. 15-501	1,250-1,850 / 1,250-2,000	20	60	5.4	B	Adequate	-	100'	Desirable 24' pavement and ultimate 100' right-of-way
N.C. 15-501/N.C. 22-24-27	2,600-2,700 / 2,650-2,700	20	60	2.2	B	Adequate	-	100'	Desirable 24' pavement and ultimate 100' right-of-way
N.C. 24-27/SR 1600	710-1,620 / 730-1,700	20	100	8.2	Adequate	Adequate	B	100'	Ultimate 24' pavement width
17. SR 1802, SR 1853/ N.C. 15-501	230-850 / 480-860	18	60	8.4	B	Adequate	-	100'	Desirable 24' pavement and ultimate 100' right-of-way
18. N.C. 705, SR 1476/ Randolph County	1,650-2,700 / 1,750-2,800	20	60	9.7	B	100'			
N.C. 211/N. C. 24-27	430-1,050 / 430-1,050	20	60	8.55	Adequate	Adequate	B	100'	Ultimate 24' pavement and 100' right-of-way
19. SR 1477,N.C. 24-27/ N. C. 705	770-1,000 / 820-1,100	18	60	6.7	B	Adequate	-	100'	Desirable 24' pavement and ultimate 100' right-of-way

Table 9.

MAJOR THOROUGHFARE IMPROVEMENT NEEDS FOR MAJOR AND MINOR ARTERIALS AND MAJOR COLLECTOR HIGHWAYS (Cont'd)

	Existing Road Conditions				Recommendations				
Roadway and Section	1970-1971 ADTV Traffic Count	Pavement Width (Feet)	Right-of-Way Width (Feet)	Length Miles	Minimum Cross Section	Desirable Right-of-Way Width	Ultimate Cross Section	Optimum Right-of-Way (Feet)	Remarks
20. SR 1006, SR 1646/ Chatam County	300-350 / 310-400	18	60	5.8	B	Adequate	-	100'	Desirable 24' pavement and ultimate 100' right-of-way
21. SR 1002, N.C. 705 to Montgomery County	490-860 / 570-900	18	60	10.15	B	Adequate	-	100'	Desirable 24' pavement width and ultimate 100' right-of-way
22. N.C. 73, N.C. 211/ Richmond County	680-1,050 / 680-1,050	20	60	6.2	Adequate	Adequate	B	100'	Ultimate 24' pavement width and 100' right-of-way
SR 1229/N.C. 15-501	480-1,370 / 500-1,370	20	60	7.5	Adequate	Adequate	B	100'	Ultimate 24' pavement width and 100' right-of-way
N.C. 15-501/SR 1840	N/A	16	60	2.0	B	Adequate	-	100'	Desirable 24' pavement width and 100' right-of-way
23. SR 2033, Hoke County	930 / 950	22	60	1.8	Adequate	Adequate	B	100'	Ultimate 24' pavement width and 100' right-of-way
24. SR 1137 & 1126, N. C. 211/N.C. 73	310 / 320	18	60	5.85	B	Adequate	-	100'	Desirable 24' pavement width and ultimate 100' right-of-way

Table 10

MINOR COLLECTOR ROADS NEEDING IMPROVEMENTS - MOORE COUNTY

Highway Number	Location of Necessary Improvement	Type of Improvement	Remarks
SR 1229	From N. C. 211 to SR 1240	Pavement increase from 16' to 24' with 100' right-of-way.	Highway deficient for existing traffic volumes.
SR 1281	From Montgomery County to N. C. 27	Pavement increase from 16' to 24' with 100' right-of-way.	Highway deficient for existing traffic volumes.
SR 1003	From N. C. 705 to SR 1419	Pavement increase from 16' to 24' with 100' right-of-way.	Highway deficient for existing traffic volumes.
SR 1007	From N. C. 15-501 to U. S. 1	Pavement increase from 16' to 24' with 100' right-of-way.	Highway deficient for existing traffic volumes.
SR 1210	From N. C. 211 to N. C. 73	Pavement increase from 16' to 24' with 100' right-of-way.	Highway deficient for existing traffic volumes.
SR 1461	From SR 1456 to N. C. 22	Pavement increase from 16' to 24' with 100' right-of-way.	Highway deficient for existing traffic volumes.
SR 1419	From N. C. 705 to SR 1003	Pavement increase from 16' to 24' with 100' right-of-way.	Highway deficient for existing traffic volumes.

MOORE COUNTY PRIORITY HIGHWAY IMPROVEMENT SCHEDULE

The following table (Table 11) indicates the highway priority needs of Moore County for the planning period 1973 to 1993. Factors influencing the priority system for highway improvements include the following:

1. Improved facility provides safer traffic movements.
2. Provides access to the growth areas of Moore County along U. S. 1 and N. C. 15-501.
3. Provides alternative route to communities within the County.
4. Provides route to surrounding communities.
5. Provides access to school site.

As indicated in Table 11, and Figure 8, the planning period was divided into three parts with primary emphasis given to the first two 4-year periods where importance for projects was placed on improving highway safety. Again, it should be understood that the scope of this study does not include enough data in most cases to determine what the ultimate improvement should be for each highway segment, i.e., widening or relocation, since recommendation for increasing pavement widths may not always be possible or desirable on existing rights-of-way. This would be determined later in a detailed route study which would precede construction of specific projects.

Additionally, the proposed priorities do not include projects that may be needed within the corporate boundaries of Southern Pines, Aberdeen, Vass, Carthage, and Robbins.

Where the State Highway Commission participates with a town in separate planning and project implementation which is coordinated with all thoroughfare plans. Thus, a proposed project in the second phase of the priority rating may be implemented in conjunction with an urban plan at some other time. The rating table (Table 11) only presents the county's interest and priority judgment to meet county needs and, therefore, should be considered flexible in its applicability to overall or comprehensive needs of both urban and rural highway projects.

Priority Highway Improvement Schedule - Moore County, 1973-1993

Priority Year Schedule	Project Location By Highway Routes	Proposed Improvement Project	Project Length (Miles)	Remarks
1973-1977 p	It is desirable that all accident prone intersections listed in Table 4 and whown on Figure 2, be inspected by the Department of Transportation for possible modification during this time period. The 19 intersection which experienced 15 or more accidents should be inspected as a minimum with improvements as necessary.			
	Major Arterials			
	U.S. 1	Develop plans and construct proposed by-pass route for US 1 around Aberdeen.	5.5	Facility would relieve the congestion in Aberdeen and provide better interstate travel.
	Minor Arterials			
	NC 211	Develop plans and obtain necessary right of-way to by-pass Pinehurst.	4.5	Facility would reroute east-west traffic out of Pinehurst and away from the traffic circle.
	N.C. 211	Develop plans for constructing a 4 lane facility from Aberdeen to Montgomery County line. Including plans for a by-pass around West End.	21	Facility would provide intercounty & interstate service. Facility would also connect the recreational areas of Moore County with the western part of the state and with the State Zoo.
	N.C. 15-501/ U.S. 1	Construct an interchange at the intersection of N.C. 15-501 and U.S. 1.		Facility would allow traffic from NC 15-501 to by-pass Aberdeen to points south and provide access to the industrial area west of Aberdeen.
	N.C. 15-501	Re-design the traffic circle in Pinehurst.		Would eliminate the need to upgrade N.C. 15-501 and eliminate much of the congestion at the traffic circle. Facility would enable the traffic circle to handle the projected development of the area adjoining the traffic circle.

Table 11.
Priority Highway Improvement Schedule - Moore County, 1973-1993

Priority Year Schedule	Project Location By Highway Routes	Proposed Improvement Project	Project Length (Miles)	Remarks
	N.C. 22,24, 27	Construct by-pass highway at Carthage	3.0	Facility would provide for inter-county service and relieve traffic congestion in Carthage.
	Major Collectors			
	N.C. 22	Re-route facility around the county airport.	3.8	Facility would provide for the much needed expansion of the county airport
	SR 1001	Develop plans for widening highway to standard capacity for major collector rating.	11.1	Facility will provide inter-county service and service to Fayetteville.
	N.C. 5, N.C. 211 SR 1110	Develop plans and construct wider highway (ideal 24') pavement; minimum 20' pavement).	5.6	Facility needs upgrading in connection with the re-routing of N.C. 11 from Pinehurst.
1978-1982	Complete analysis of high accident rate intersections and provide modifications where indicated.			
	Major Arterials			
	U.S. 1	Develop plans and construct proposed by-pass route for U.S. 1 in Vass.	8.6	Facility will provide through traffic service from Pinehurst, Southern Pines, and Aberdeen to Raleigh and other parts of the state.

Table 11.
Priority Highway Improvement Schedule - Moore County, 1973-1993

Priority Year Schedule	Project Location By Highway Routes	Proposed Improvement Project	Project Length (Miles)	Remarks
	Minor Arterials			
	N.C. 15-501	Construct 4-lane limited access facility.	12.9	See remarks in 1973-1977 scheduling.
	N.C. 211	Develop plans and construct proposed by-pass route for N.C. 211 around West End, & construct a 4-land facility from Aberdeen to Montgomery County.	3.0	Facility will provide through traffic service.
	N.C. 705	Construct widened highway	1.6	Facility provides inter-county and interstate service.
	N.C. 22, 24, 27	Develop plans and construct wider highway (ideal 24' pavement, minimum 22' pavement).	18.4	
	N.C. 22, SR 1840-N.C. 15-501	Develop plans and construct wider highway (ideal 24', minimum 22 pavement).	3.5	
	N.C. 1644	Develop plans and construct wider highway (ideal 24' pavement - minimum 22' pavement).	11.2	
	Major Collectors			
1978-1982	N.C. 705 SR 1476-Randolph Co. and N.C. 211/ N.C. 24-27	Develop plans for widening highway to 24' pavement.	18.3	Facility provides inter-county service.
	SR 1001	Construct widened highway.	11.1	Facility will provide inter-county service and service to Fayetteville.

Table 11
Priority Highway Improvement Schedule - Moore County, 1973-1993

Priority Year Schedule	Project Location By Highway Routes	Proposed Improvement Project	Project Length (Miles)	Remarks
	SR 1205 N.C. 15-501 - NC 5	Develop plans and construct widened highway to standard capacity for major collector rating (minimum necessary, 20' pavement).	1.7	Facility would provide inter-community service to a rapidly growing area of the Co.
1983-1993	Major Arterial			
	(Completed)			
	Minor Arterial			
	(Completed)			
	Major Collectors			
	SR 1477 N.C. 24-27/ N.C. 705	Develop plans and construct highway to standard capacity for major collector rating.	6.7	Facility provides intra-county service.
	SR 1002 N.C. 705 to Montgomery Co.	Develop plans and construct highway to standard capacity for major collector rating.	10.5	Facility provides inter-county service to the industrial areas of Robbins.
	SR 73 N.C. 15-501 to Richmond County	Develop plans and construct wider highway (ideal 24' pavement; minimum 20' pavement).	15.7	Facility provides inter-county service and also service between county communities.
	SR 1006 SR 1646/Chatham Co.	Develop plans and construct wider highway (ideal 24' pavement; minimum 20' pavement).	5.8	

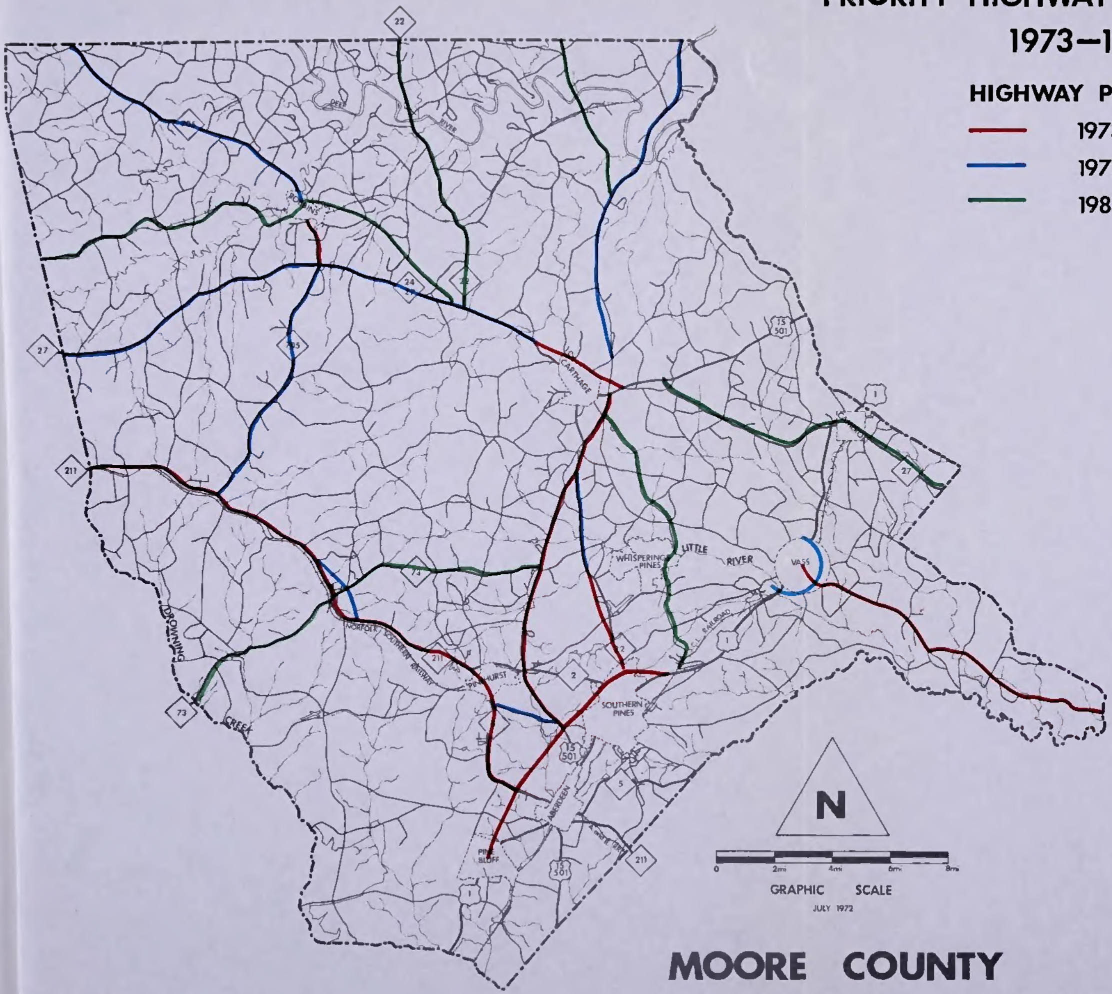
Table 11
Priority Highway Improvement Schedule - Moore County, 1973-1993

Priority Year Schedule	Project Location By Highway Routes	Proposed Improvement Project	Project Length (Miles)	Remarks
	N.C. 27-24 Harnett Co. - N.C. 15-501	Develop plans and construct sider highway (ideal 24' pavement; minimum 20' pavement).	11.1	
	SR 1834 N.C. 22/N.C. 5	Develop plans and construct highway to standard capacity for major collector rating (minimum neccessary 20' pavement).	5.1	Facility provides intra-county service.
	SR 1802 SR 1853/N.C. 15-501	Develop plans and construct highway to standard capcity for major collector rating (minimum necessary 20' pavement).	8.4	Facility provides intra-county service.
	N.C. 22 N.C. 24-27/ Chatham Co.	Develop plans and construct wider highway (ideal 24' pavement, minimum 20' pavement).	10.4	

All remaining intersection improvement projects listed in this table should be completed during this period. This would improve safety conditions for most county secondary and local roads.

705
27
211
DROWNING
73

PRIORITY HIGHWAY IMPROVEMENTS
1973—1990



MOORE COUNTY

FIGURE 8

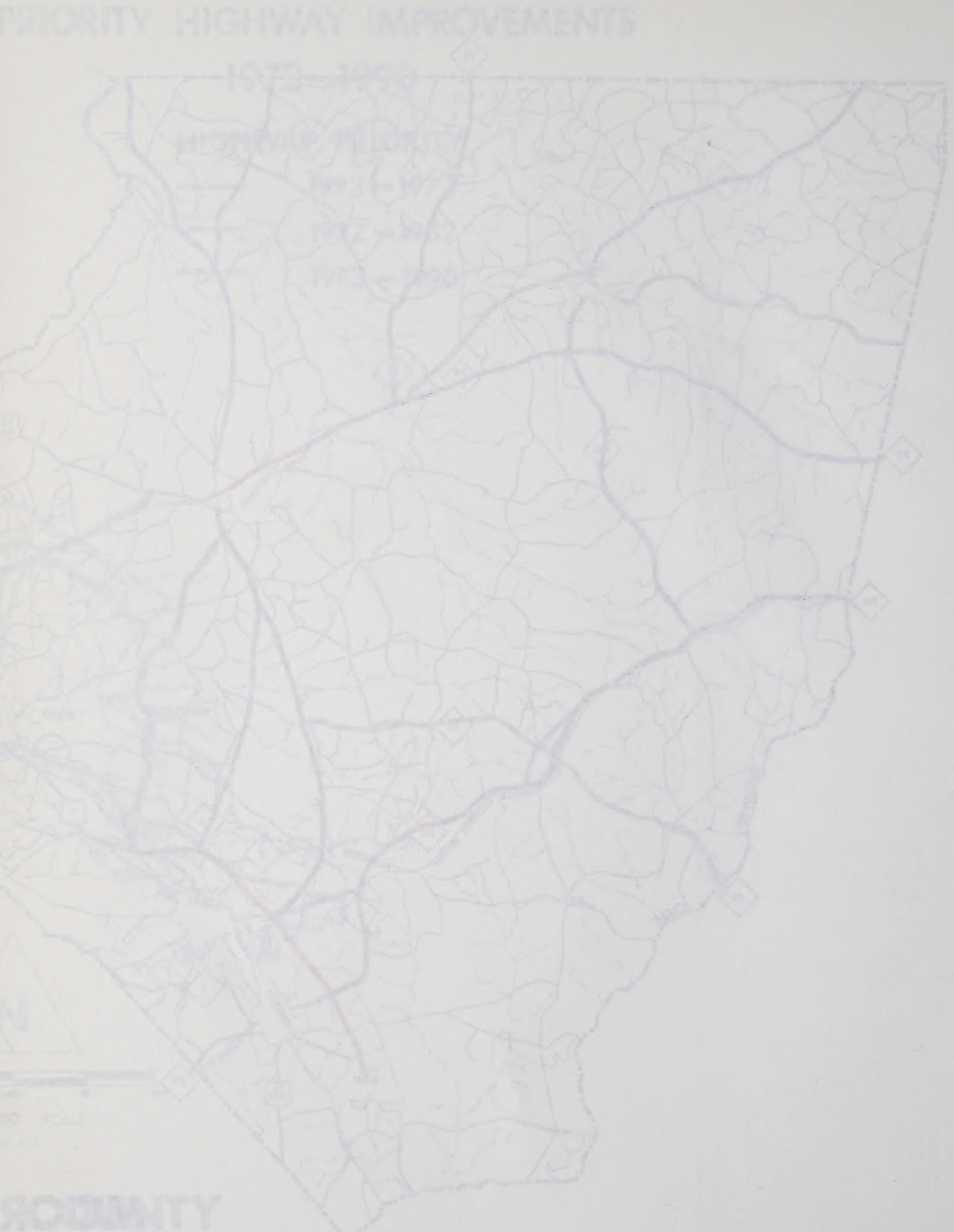


FIGURE 8

THIS REPORT WAS PREPARED BY:

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